

# Sequence Listing

<110> Baker, Kevin  
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 Filvaroff, Ellen  
 Gerritsen, Mary  
 Goddard, Audrey  
 Godowski, Paul  
 Grimaldi, Christopher  
 Gurney, Austin  
 Hillan, Kenneth  
 Kljavin, Ivar  
 Napier, Mary  
 Roy, Margaret  
 Tumas, Daniel  
 Wood, William

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Pro Arg Ser His Phe Phe Pro Phe Asp Leu Phe Pro Met Cys Pro  
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80 85 90  
Gly Leu Thr Ser Val Pro Thr Asn Ile Pro Phe Asp Thr Arg Met  
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Leu Asn Leu Pro Lys Ser Leu Ala Glu Leu Arg Ile His Glu Asn  
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185 190 195  
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50 55 60

Asp Glu Thr Trp His Pro Asp Leu Gly Gln Pro Phe Gly Val Met  
65 70 75

Arg Cys Val Leu Cys	Ala Cys Glu Ala	Pro Gln Trp Gly Arg Arg	80	85	90
Thr Arg Gly Pro Gly	Arg Val Ser Cys	Lys Asn Ile Lys Pro Glu	95	100	105
Cys Pro Thr Pro Ala	Cys Gly Gln Pro	Arg Gln Leu Pro Gly His	110	115	120
Cys Cys Gln Thr Cys	Pro Gln Glu Arg	Ser Ser Ser Glu Arg Gln	125	130	135
Pro Ser Gly Leu Ser	Phe Glu Tyr Pro	Arg Asp Pro Glu His Arg	140	145	150
Ser Tyr Ser Asp Arg	Gly Glu Pro Gly	Ala Glu Glu Arg Ala Arg	155	160	165
Gly Asp Gly His Thr	Asp Phe Val Ala	Leu Leu Thr Gly Pro Arg	170	175	180
Ser Gln Ala Val Ala	Arg Ala Arg Val	Ser Leu Leu Arg Ser Ser	185	190	195
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Ser Ala Ala Pro Pro Val Val Pro Gly Leu Pro Ala Leu Ala Pro	680	685	690
Ala Lys Pro Gly Gly Pro Gly Arg Pro Arg Asp Pro Asn Thr Cys	695	700	705
Phe Phe Glu Gly Gln Gln Arg Pro His Gly Ala Arg Trp Ala Pro	710	715	720
Asn Tyr Asp Pro Leu Cys Ser Leu Cys Thr Cys Gln Arg Arg Thr	725	730	735
Val Ile Cys Asp Pro Val Val Cys Pro Pro Pro Ser Cys Pro His	740	745	750
Pro Val Gln Ala Pro Asp Gln Cys Cys Pro Val Cys Pro Glu Lys	755	760	765
Gln Asp Val Arg Asp Leu Pro Gly Leu Pro Arg Ser Arg Asp Pro	770	775	780
Gly Glu Gly Cys Tyr Phe Asp Gly Asp Arg Ser Trp Arg Ala Ala	785	790	795
Gly Thr Arg Trp His Pro Val Val Pro Pro Phe Gly Leu Ile Lys	800	805	810
Cys Ala Val Cys Thr Cys Lys Gly Gly Thr Gly Glu Val His Cys	815	820	825
Glu Lys Val Gln Cys Pro Arg Leu Ala Cys Ala Gln Pro Val Arg	830	835	840
Val Asn Pro Thr Asp Cys Cys Lys Gln Cys Pro Val Gly Ser Gly	845	850	855
Ala His Pro Gln Leu Gly Asp Pro Met Gln Ala Asp Gly Pro Arg	860	865	870
Gly Cys Arg Phe Ala Gly Gln Trp Phe Pro Glu Ser Gln Ser Trp	875	880	885
His Pro Ser Val Pro Pro Phe Gly Glu Met Ser Cys Ile Thr Cys	890	895	900
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cagggggact ggtcctcctg gaggagatgc tcgccttggg gaataatcac 950  
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cttaactctg gtggtgaagg tcagcacctg tgtgccgggg gagagtcacg 1050

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ggaccagccc	aatggttata	actgccactg	cccgcatggg	tgggtgggag	1950
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ctcaccaaca	tgccacggca	ctccctctac	atcatcattg	gagccctctg	2050
cgtggccttc	atccttatgc	tgatcatcct	gatcgtgggg	atttgccgca	2100
tcagccgcat	tgaataccag	ggttcttcca	ggccagccta	tgaggagttc	2150
tacaactgcc	gcagcatcga	cagcgagttc	agcaatgcca	ttgcatccat	2200
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gatgagatac	tacactcatt	taaatatttt	taagaaaata	aaaagcttaa	2400
gaaatttaaa	atgctagctg	ctcaagagtt	ttcagtagaa	tattttaagaa	2450
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[illegible]

<211> 737

<212> PRT

<213> Home

<400> 15

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Ser Ser Leu Ala Asn Pro Val Pro Ala Ala Pro Leu Ser Ala Pro  
35 40 45

Gly Pro Cys Ala Ala Gln Pro Cys Arg Asn Gly Gly Val Cys Thr  
50 55 60

Ser Arg Pro Glu Pro Asp Pro Gln His Pro Ala Pro Ala Gly Glu  
65 70 75

Pro Gly Tyr Ser Cys Thr Cys Pro Ala Gly Ile Ser Gly Ala Asn  
80 85 90

Cys Gln Leu Val Ala Asp Pro Cys Ala Ser Asn Pro Cys His His  
95 100 105

Gly Asn Cys Ser Ser Ser Ser Ser Ser Ser Ser Asp Gly Tyr Leu





Thr Cys Ile Ser	Ser Leu Ser Gly Phe	Thr Cys Gln Cys Pro Glu	410	415	420
Gly Tyr Phe Gly	Ser Ala Cys Glu Glu	Lys Val Asp Pro Cys Ala	425	430	435
Ser Ser Pro Cys	Gln Asn Asn Gly Thr	Cys Tyr Val Asp Gly Val	440	445	450
His Phe Thr Cys	Asn Cys Ser Pro Gly	Phe Thr Gly Pro Thr Cys	455	460	465
Ala Gln Leu Ile	Asp Phe Cys Ala Leu	Ser Pro Cys Ala His Gly	470	475	480
Thr Cys Arg Ser	Val Gly Thr Ser Tyr	Lys Cys Leu Cys Asp Pro	485	490	495
Gly Tyr His Gly	Leu Tyr Cys Glu Glu	Glu Tyr Asn Glu Cys Leu	500	505	510
Ser Ala Pro Cys	Leu Asn Ala Ala Thr	Cys Arg Asp Leu Val Asn	515	520	525
Gly Tyr Glu Cys	Val Cys Leu Ala Glu	Tyr Lys Gly Thr His Cys	530	535	540
Glu Leu Tyr Lys	Asp Pro Cys Ala Asn	Val Ser Cys Leu Asn Gly	545	550	555
Ala Thr Cys Asp	Ser Asp Gly Leu Asn	Gly Thr Cys Ile Cys Ala	560	565	570
Pro Gly Phe Thr	Gly Glu Glu Cys Asp	Ile Asp Ile Asn Glu Cys	575	580	585
Asp Ser Asn Pro	Cys His His Gly Gly	Ser Cys Leu Asp Gln Pro	590	595	600
Asn Gly Tyr Asn	Cys His Cys Pro His	Gly Trp Val Gly Ala Asn	605	610	615
Cys Glu Ile His	Leu Gln Trp Lys Ser	Gly His Met Ala Glu Ser	620	625	630
Leu Thr Asn Met	Pro Arg His Ser Leu	Tyr Ile Ile Ile Gly Ala	635	640	645
Leu Cys Val Ala	Phe Ile Leu Met Leu	Ile Ile Leu Ile Val Gly	650	655	660
Ile Cys Arg Ile	Ser Arg Ile Glu Tyr	Gln Gly Ser Ser Arg Pro	665	670	675
Ala Tyr Glu Glu	Phe Tyr Asn Cys Arg	Ser Ile Asp Ser Glu Phe	680	685	690
Ser Asn Ala Ile	Ala Ser Ile Arg His	Ala Arg Phe Gly Lys Lys			

695

700

705

Ser Arg Pro Ala Met Tyr Asp Val Ser Pro Ile Ala Tyr Glu Asp  
 710 715 720

Tyr Ser Pro Asp Asp Lys Pro Leu Val Thr Leu Ile Lys Thr Lys  
 725 730 735

Asp Leu

<210> 16

<211> 43

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide Probe

<400> 16

tgtaaaacga cggccagtta aatagacctg caattattaa tct 43

<210> 17

<211> 41

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide Probe

<400> 17

caggaaacag ctatgaccac ctgcacacct gcaaattccat t 41

<210> 18

<211> 508

<212> DNA

<213> Homo Sapien

<400> 18

ctctggaagg tcacggccac aggattccaa cagtgtctcc tcatagatgg 50

acgaaagtgt gacccccctt tcaggctttc agggggactg gtctctctgg 100

aggagatgct cgccttgggg aataatcact ttattggttt tgtgaatgat 150

tctgtgacta agtctattgt ggctttgcgc ttaactctgg tggatgaagg 200

cagcacctgt gtgccggggg agagtcacgc aaatgacttg gagggttcag 250

gaaaaggaaa atgcaccacg aagccgtcag aggcaacttt ttctgtacc 300

tgtgaggagc agtacgtggg tactttctgt gaagaatacg atgcttgcca 350

gaggaaacct tgccaaaaca acgcgagctg tattgatgca aatgaaaagc 400

aagatgggag caatttcacc tgtgtttgcc ttctgggta tactggagag 450

ctttgccaac cgaactgaga ttggagcgaa cgacctacac cgaactgaga 500

taggggag 508

<210> 19  
<211> 508  
<212> DNA  
<213> Homo Sapien

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acgaaagtgt gacccccctt tcaggctttc agggggactg gtctctctgg 100  
aggagatgct cgccttgggg aataatcact ttattggttt tgtgaatgat 150  
tctgtgacta agtctattgt ggctttgctc ttaactctgg tggagaagg 200  
cagcacctgt gtgccggggg agagtcacgc aaatgacttg gagggttcag 250  
gaaaaggaaa atgcaccacg aagccgtcag aggcacttt ttctgtacc 300  
tgtgaggagc agtacgtggg tactttctgt gaagaatacg atgcttgcca 350  
gaggaaacct tgccaaaaca acgcgagctg tattgatgca aatgaaaagc 400  
aagatgggag caatttcacc tgtgtttgcc ttctgggtta tactggagag 450  
ctttgccaac cgaactgaga ttggagcgaa cgacctacac cgaactgaga 500  
taggggag 508

<210> 20  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic Oligonucleotide Probe

<400> 20  
ctctggaagg tcacggccac agg 23

<210> 21  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 21  
ctcagttcgg ttggcaaagc tctc 24

<210> 22  
<211> 69  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 22

cagtgtctccc tcatagatgg acgaaagtgt gacccccctt tcaggcgaga 50

gctttgccaa ccgaactga 69

<210> 23

<211> 1520

<212> DNA

<213> Homo Sapien

<400> 23

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acaccacgcc agggcccccc agagccctca ccacgtctggg cgcccccaga 100

gccacacca tgccgggcac ctacgtctcc tcgaccacac tcagtagtcc 150

cagcaccag ggctgcaag agcaggcacg ggccctgatg cgggacttcc 200

cgctcgtgga cggccacaac gacctgccc tggctctaag gcaggtttac 250

cagaaagggc tacaggatgt taacctgcgc aatttcagct acggccagac 300

cagcctggac aggccttagag atggcctcgt gggcgcccag ttctggtcag 350

cctatgtgcc atgccagacc caggaccggg atgcctgcg cctcaccctg 400

gagcagattg acctcatagc ccgcatgtgt gcctctatt ctgagctgga 450

gcttgtgacc tcggctaaag ctctgaacga cactcagaaa ttggcctgcc 500

tcatcgggtgt agaggggtggc cactcgtctg acaatagcct ctccatctta 550

cgtaccttct acatgctggg agtgcgtac ctgacgtca cccacacctg 600

caacacaccc tgggcagaga gtcgcgctaa gggcgctccac tccttctaca 650

acaacatcag cgggctgact gactttggtg agaagggtggg ggcagaaatg 700

aaccgcctgg gcatgatggt agacttatcc catgtctcag atgctgtggc 750

acggcggggc ctggaagtgt cacaggcacc tgtgatcttc tcccactcgg 800

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cagcttctga agaagaacgg tggcgtcgtg atggtgtctt tgtccatggg 900

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agcttcaggg tgtccttcgt ggaaacctgc tgcgggtctt cagacaagtg 1150

gaaaaggtac aggaagaaaa caaatggcaa agccccttgg aggacaagtt 1200  
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 gtcagagaca gagtctgact tcaggccagg aactcactga gattcccata 1300  
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 ccacatggcc ccagtccttg cagttgtggc caccttcccc gtccttattc 1400  
 tgtggctctg atgacccagt tagtcctgcc agatgtcact gtagcaagcc 1450  
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 aataaatggt ttggacatag 1520

<210> 24  
 <211> 433  
 <212> PRT  
 <213> Homo Sapien

<400> 24  
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 20 25 30  
 Pro Leu Val Asp Gly His Asn Asp Leu Pro Leu Val Leu Arg Gln  
 35 40 45  
 Val Tyr Gln Lys Gly Leu Gln Asp Val Asn Leu Arg Asn Phe Ser  
 50 55 60  
 Tyr Gly Gln Thr Ser Leu Asp Arg Leu Arg Asp Gly Leu Val Gly  
 65 70 75  
 Ala Gln Phe Trp Ser Ala Tyr Val Pro Cys Gln Thr Gln Asp Arg  
 80 85 90  
 Asp Ala Leu Arg Leu Thr Leu Glu Gln Ile Asp Leu Ile Arg Arg  
 95 100 105  
 Met Cys Ala Ser Tyr Ser Glu Leu Glu Leu Val Thr Ser Ala Lys  
 110 115 120  
 Ala Leu Asn Asp Thr Gln Lys Leu Ala Cys Leu Ile Gly Val Glu  
 125 130 135  
 Gly Gly His Ser Leu Asp Asn Ser Leu Ser Ile Leu Arg Thr Phe  
 140 145 150  
 Tyr Met Leu Gly Val Arg Tyr Leu Thr Leu Thr His Thr Cys Asn  
 155 160 165  
 Thr Pro Trp Ala Glu Ser Ser Ala Lys Gly Val His Ser Phe Tyr  
 170 175 180

Asn	Asn	Ile	Ser	Gly	Leu	Thr	Asp	Phe	Gly	Glu	Lys	Val	Val	Ala	185	190	195
Glu	Met	Asn	Arg	Leu	Gly	Met	Met	Val	Asp	Leu	Ser	His	Val	Ser	200	205	210
Asp	Ala	Val	Ala	Arg	Arg	Ala	Leu	Glu	Val	Ser	Gln	Ala	Pro	Val	215	220	225
Ile	Phe	Ser	His	Ser	Ala	Ala	Arg	Gly	Val	Cys	Asn	Ser	Ala	Arg	230	235	240
Asn	Val	Pro	Asp	Asp	Ile	Leu	Gln	Leu	Leu	Lys	Lys	Asn	Gly	Gly	245	250	255
Val	Val	Met	Val	Ser	Leu	Ser	Met	Gly	Val	Ile	Gln	Cys	Asn	Pro	260	265	270
Ser	Ala	Asn	Val	Ser	Thr	Val	Ala	Asp	His	Phe	Asp	His	Ile	Lys	275	280	285
Ala	Val	Ile	Gly	Ser	Lys	Phe	Ile	Gly	Ile	Gly	Gly	Asp	Tyr	Asp	290	295	300
Gly	Ala	Gly	Lys	Phe	Pro	Gln	Gly	Leu	Glu	Asp	Val	Ser	Thr	Tyr	305	310	315
Pro	Val	Leu	Ile	Glu	Glu	Leu	Leu	Ser	Arg	Gly	Trp	Ser	Glu	Glu	320	325	330
Glu	Leu	Gln	Gly	Val	Leu	Arg	Gly	Asn	Leu	Leu	Arg	Val	Phe	Arg	335	340	345
Gln	Val	Glu	Lys	Val	Gln	Glu	Glu	Asn	Lys	Trp	Gln	Ser	Pro	Leu	350	355	360
Glu	Asp	Lys	Phe	Pro	Asp	Glu	Gln	Leu	Ser	Ser	Ser	Cys	His	Ser	365	370	375
Asp	Leu	Ser	Arg	Leu	Arg	Gln	Arg	Gln	Ser	Leu	Thr	Ser	Gly	Gln	380	385	390
Glu	Leu	Thr	Glu	Ile	Pro	Ile	His	Trp	Thr	Ala	Lys	Leu	Pro	Ala	395	400	405
Lys	Trp	Ser	Val	Ser	Glu	Ser	Ser	Pro	His	Met	Ala	Pro	Val	Leu	410	415	420
Ala	Val	Val	Ala	Thr	Phe	Pro	Val	Leu	Ile	Leu	Trp	Leu			425	430	

<210> 25

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 25  
agttctggtc agcctatgtg cc 22

<210> 26  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 26  
cgtgatggtg tctttgtcca tggg 24

<210> 27  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 27  
ctccaccaat cccgatgaac ttgg 24

<210> 28  
<211> 50  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 28  
gagcagattg acctcatagc cgcgatgtgt gcctcctatt ctgagctgga 50

<210> 29  
<211> 1416  
<212> DNA  
<213> Homo Sapien

<400> 29  
aaaacctata aatattccgg attattcata ccgtcccacc atcgggcgcg 50  
gatccgcggc cggaattct aaaccaacat gccgggcacc tacgctccct 100  
cgaccacact cagtagtccc agcaccagg gcctgcaaga gcaggcacgg 150  
gccctgatgc gggacttccc gctcgtggac ggccacaacg acctgcccct 200  
ggctctaagg caggtttacc agaaagggt acaggatgtt aacctgcgca 250  
atttcagcta cggccagacc agcctggaca ggcttagaga tggcctcgtg 300  
ggcgcccagt tctggtcagc ctatgtgcca tgccagaccc aggaccggga 350  
tgccctgcgc ctcaccctgg agcagattga cctcatagc cgcgatgtgtg 400



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cctcctattc tgagctggag cttgtgacct cggctaaagc tctgaacgac 450
actcagaaat tggcctgcct catcggtgta gagggtggcc actcgctgga 500
caatagcctc tccatcttac gtaccttcta catgctggga gtgcgctacc 550
tgacgctcac ccacacctgc aacacaccct gggcagagag ctccgctaag 600
ggcgctccact ccttctacaa caacatcagc gggctgactg actttgggtga 650
gaagggtggtg gcagaaatga accgcctggg catgatggta gacttatccc 700
atgtctcaga tgctgtggca cggcgggccc tggaagtgtc acaggcacct 750
gtgatcttct cccactcggc tgcccgggggt gtgtgcaaca gtgctcggaa 800
tgttctgat gacatcctgc agcttctgaa gaagaacggt ggcgtcgtga 850
tggtgtcttt gtccatggga gtaatacagt gcaacccatc agccaatgtg 900
tccactgtgg cagatcactt cgaccacatc aaggctgtca ttggatccaa 950
gttcacgagg attggtggag attatgatgg ggccggcaaa ttccctcagg 1000
ggctggaaga cgtgtccaca taccgggtcc tgatagagga gttgctgagt 1050
cgtggctgga gtgaggaaga gcttcagggt gtccttcgtg gaaacctgct 1100
gcgggtcttc agacaagtgg aaaaggtaca ggaagaaaac aaatggcaaa 1150
gccccttgga ggacaagttc ccggatgagc agctgagcag ttctgcccac 1200
tccgacctct cacgtctgcg tcagagacag agtctgactt caggccagga 1250
actcactgag attcccatac actggacagc caagttacca gccaaagtgt 1300
cagtctcaga gtctctcccc caccctgaca aaactcacac atgcccaccg 1350
tgcccagcac ctgaactcct ggggggaccg tcagtcttcc tcttcccccc 1400
aaaacccaag gacacc 1416
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<210> 30

<212> PRT

<400> 30

Thr Gln Gly Leu Gln Glu Gln Ala Arg Ala Leu Met Arg Asp Phe  
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Val Tyr Gln Lys Gly Leu Gln Asp Val Asn Leu Arg Asn Phe Ser

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Tyr	Gly	Gln	Thr	Ser	Leu	Asp	Arg	Leu	Arg	Asp	Gly	Leu	Val	Gly			
				65					70					75			
Ala	Gln	Phe	Trp	Ser	Ala	Tyr	Val	Pro	Cys	Gln	Thr	Gln	Asp	Arg			
				80					85					90			
Asp	Ala	Leu	Arg	Leu	Thr	Leu	Glu	Gln	Ile	Asp	Leu	Ile	Arg	Arg			
				95					100					105			
Met	Cys	Ala	Ser	Tyr	Ser	Glu	Leu	Glu	Leu	Val	Thr	Ser	Ala	Lys			
				110					115					120			
Ala	Leu	Asn	Asp	Thr	Gln	Lys	Leu	Ala	Cys	Leu	Ile	Gly	Val	Glu			
				125					130					135			
Gly	Gly	His	Ser	Leu	Asp	Asn	Ser	Leu	Ser	Ile	Leu	Arg	Thr	Phe			
				140					145					150			
Tyr	Met	Leu	Gly	Val	Arg	Tyr	Leu	Thr	Leu	Thr	His	Thr	Cys	Asn			
				155					160					165			
Thr	Pro	Trp	Ala	Glu	Ser	Ser	Ala	Lys	Gly	Val	His	Ser	Phe	Tyr			
				170					175					180			
Asn	Asn	Ile	Ser	Gly	Leu	Thr	Asp	Phe	Gly	Glu	Lys	Val	Val	Ala			
				185					190					195			
Glu	Met	Asn	Arg	Leu	Gly	Met	Met	Val	Asp	Leu	Ser	His	Val	Ser			
				200					205					210			
Asp	Ala	Val	Ala	Arg	Arg	Ala	Leu	Glu	Val	Ser	Gln	Ala	Pro	Val			
				215					220					225			
Ile	Phe	Ser	His	Ser	Ala	Ala	Arg	Gly	Val	Cys	Asn	Ser	Ala	Arg			
				230					235					240			
Asn	Val	Pro	Asp	Asp	Ile	Leu	Gln	Leu	Leu	Lys	Lys	Asn	Gly	Gly			
				245					250					255			
Val	Val	Met	Val	Ser	Leu	Ser	Met	Gly	Val	Ile	Gln	Cys	Asn	Pro			
				260					265					270			
Ser	Ala	Asn	Val	Ser	Thr	Val	Ala	Asp	His	Phe	Asp	His	Ile	Lys			
				275					280					285			
Ala	Val	Ile	Gly	Ser	Lys	Phe	Ile	Gly	Ile	Gly	Gly	Asp	Tyr	Asp			
				290					295					300			
Gly	Ala	Gly	Lys	Phe	Pro	Gln	Gly	Leu	Glu	Asp	Val	Ser	Thr	Tyr			
				305					310					315			
Pro	Val	Leu	Ile	Glu	Glu	Leu	Leu	Ser	Arg	Gly	Trp	Ser	Glu	Glu			
				320					325					330			
Glu	Leu	Gln	Gly	Val	Leu	Arg	Gly	Asn	Leu	Leu	Arg	Val	Phe	Arg			
				335					340					345			

Gln Val Glu Lys Val Gln Glu Glu Asn Lys Trp Gln Ser Pro Leu	350	355	360
Glu Asp Lys Phe Pro Asp Glu Gln Leu Ser Ser Ser Cys His Ser	365	370	375
Asp Leu Ser Arg Leu Arg Gln Arg Gln Ser Leu Thr Ser Gly Gln	380	385	390
Glu Leu Thr Glu Ile Pro Ile His Trp Thr Ala Lys Leu Pro Ala	395	400	405
Lys Trp Ser Val Ser Glu Ser Ser Pro His Pro Asp Lys Thr His	410	415	420
Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser	425	430	435
Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr	440	445	

<210> 31  
 <211> 1790  
 <212> DNA  
 <213> Homo Sapien

<400> 31  
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 gcgtcccgcg ccctgcgcca ccgcgcgcca gccgcagccc gccgcgcgcc 100  
 cccggcagcg ccggccccat gccgcgcggc cgccgggggc ccgcccacca 150  
 atccgcgcgg cgccgcgcgc cgttgctgcc cctgctgctg ctgctctgcg 200  
 tcctcggggc gccgcgagcc ggatcaggag cccacacagc tgtgatcagt 250  
 ccccaggatc ccacgtttct catcggtccc tcctgctgg ccacctgctc 300  
 agtgcacgga gacccaccag gagccaccgc cgagggcctc tactggacct 350  
 tcaacggggc ccgcctgccc cctgagctct cccgtgtact caacgcctcc 400  
 accttggtc tgccctggc caacctcaat ggggccaggc agcggtcggg 450  
 ggacaacctc gtgtgccacg cccgtgacgg cagcatcctg gctggctcct 500  
 gcctctatgt tggcctgccc ccagagaaac ccgtcaacat cagctgctgg 550  
 tccaagaaca tgaaggactt gacctgccgc tggacgccag gggcccacgg 600  
 ggagaccttc ctccacacca actactccct caagtacaag cttaggtggg 650  
 atggccagga caacacatgt gaggagtacc acacagtggg gcccactcc 700  
 tgccacatcc ccaaggacct ggctctcttt acgccctatg agatctgggt 750  
 ggaggccacc aaccgcctgg gctctgcccg ctccgatgta ctcacgctgg 800

atatacctgga tgtggtgacc acggaccccc cgcgcgacgt gcacgtgagc 850  
 cgcgtcgggg gcctggagga ccagctgagc gtgcgctggg tgtegccacc 900  
 cgccctcaag gatttctctt ttcaagccaa ataccagatc cgctaccgag 950  
 tggaggacag tgtggactgg aaggtggtgg acgatgtgag caaccagacc 1000  
 tcctgccgcc tggccggcct gaaacccggc accgtgtact tcgtgcaagt 1050  
 gcgctgcaac ccctttggca tctatggctc caagaaagcc gggatctgga 1100  
 gtgagtggag ccaccccaca gccgcctcca ctecccgag tgagcgcccg 1150  
 ggcccgggcg gcggggcggtg cgaaccggcg ggccggagagc cgagctcggg 1200  
 gccggtgcgg cgcgagctca agcagttcct gggctggctc aagaagcacg 1250  
 cgtactgtc caacctcagc ttcgcctct acgaccagtg gcgagcctgg 1300  
 atgcagaagt cgcacaagac ccgcaaccag gacgagggga tcctgccctc 1350  
 gggcagacgg ggcacggcga gaggtcctgc cagataagct gtaggggctc 1400  
 aggccaccct ccctgccacg tggagacgca gaggccgaac ccaaactggg 1450  
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 tggttgagtt gcctagaacc cctgccaggg ctgggggtga gaaggggagt 1650  
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 aaaaaaaaaa aaaaaaaaaa aaaaacaaaa aaaaaaaaaa 1790

<210> 32  
 <211> 422  
 <212> PRT  
 <213> Homo Sapien

<400> 32  
 Met Pro Ala Gly Arg Arg Gly Pro Ala Ala Gln Ser Ala Arg Arg  
 1 5 10 15  
 Pro Pro Pro Leu Leu Pro Leu Leu Leu Leu Cys Val Leu Gly  
 20 25 30  
 Ala Pro Arg Ala Gly Ser Gly Ala His Thr Ala Val Ile Ser Pro  
 35 40 45  
 Gln Asp Pro Thr Leu Leu Ile Gly Ser Ser Leu Leu Ala Thr Cys  
 50 55 60

Ser	Val	His	Gly	Asp	Pro	Pro	Gly	Ala	Thr	Ala	Glu	Gly	Leu	Tyr	65	70	75
Trp	Thr	Leu	Asn	Gly	Arg	Arg	Leu	Pro	Pro	Glu	Leu	Ser	Arg	Val	80	85	90
Leu	Asn	Ala	Ser	Thr	Leu	Ala	Leu	Ala	Leu	Ala	Asn	Leu	Asn	Gly	95	100	105
Ser	Arg	Gln	Arg	Ser	Gly	Asp	Asn	Leu	Val	Cys	His	Ala	Arg	Asp	110	115	120
Gly	Ser	Ile	Leu	Ala	Gly	Ser	Cys	Leu	Tyr	Val	Gly	Leu	Pro	Pro	125	130	135
Glu	Lys	Pro	Val	Asn	Ile	Ser	Cys	Trp	Ser	Lys	Asn	Met	Lys	Asp	140	145	150
Leu	Thr	Cys	Arg	Trp	Thr	Pro	Gly	Ala	His	Gly	Glu	Thr	Phe	Leu	155	160	165
His	Thr	Asn	Tyr	Ser	Leu	Lys	Tyr	Lys	Leu	Arg	Trp	Tyr	Gly	Gln	170	175	180
Asp	Asn	Thr	Cys	Glu	Glu	Tyr	His	Thr	Val	Gly	Pro	His	Ser	Cys	185	190	195
His	Ile	Pro	Lys	Asp	Leu	Ala	Leu	Phe	Thr	Pro	Tyr	Glu	Ile	Trp	200	205	210
Val	Glu	Ala	Thr	Asn	Arg	Leu	Gly	Ser	Ala	Arg	Ser	Asp	Val	Leu	215	220	225
Thr	Leu	Asp	Ile	Leu	Asp	Val	Val	Thr	Thr	Asp	Pro	Pro	Pro	Asp	230	235	240
Val	His	Val	Ser	Arg	Val	Gly	Gly	Leu	Glu	Asp	Gln	Leu	Ser	Val	245	250	255
Arg	Trp	Val	Ser	Pro	Pro	Ala	Leu	Lys	Asp	Phe	Leu	Phe	Gln	Ala	260	265	270
Lys	Tyr	Gln	Ile	Arg	Tyr	Arg	Val	Glu	Asp	Ser	Val	Asp	Trp	Lys	275	280	285
Val	Val	Asp	Asp	Val	Ser	Asn	Gln	Thr	Ser	Cys	Arg	Leu	Ala	Gly	290	295	300
Leu	Lys	Pro	Gly	Thr	Val	Tyr	Phe	Val	Gln	Val	Arg	Cys	Asn	Pro	305	310	315
Phe	Gly	Ile	Tyr	Gly	Ser	Lys	Lys	Ala	Gly	Ile	Trp	Ser	Glu	Trp	320	325	330
Ser	His	Pro	Thr	Ala	Ala	Ser	Thr	Pro	Arg	Ser	Glu	Arg	Pro	Gly	335	340	345
Pro	Gly	Gly	Gly	Ala	Cys	Glu	Pro	Arg	Gly	Gly	Glu	Pro	Ser	Ser			

350	355	360
Gly Pro Val Arg Arg Glu Leu Lys Gln Phe Leu Gly Trp Leu Lys		
365	370	375
Lys His Ala Tyr Cys Ser Asn Leu Ser Phe Arg Leu Tyr Asp Gln		
380	385	390
Trp Arg Ala Trp Met Gln Lys Ser His Lys Thr Arg Asn Gln Asp		
395	400	405
Glu Gly Ile Leu Pro Ser Gly Arg Arg Gly Thr Ala Arg Gly Pro		
410	415	420
Ala Arg		

<210> 33  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 33  
 cccgcccgac gtgcacgtga gcc 23

<210> 34  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 34  
 tgagccagcc caggaaactgc ttg 23

<210> 35  
 <211> 50  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 35  
 caagtgcgct gcaacccctt tggcatctat ggctccaaga aagccgggat 50

<210> 36  
 <211> 1771  
 <212> DNA  
 <213> Homo Sapien

<400> 36  
 cccacgcgtc cgctgggtgtt agatcgagca accctctaaa agcagtttag 50

agtggtaaaa aaaaaaaaaa acacacccaaa cgctcgcagc cacaaaaggg 100  
 atgaaatttc ttctggacat cctcctgctt ctcccgttac tgatcgtctg 150  
 ctccctagag tccttcgtga agctttttat tcctaagagg agaaaatcag 200  
 tcaccggcga aatcgtgctg attacaggag ctgggcacatg aattgggaga 250  
 ctgactgcct atgaatttgc taaacttaaa agcaagctgg ttctctggga 300  
 tataaataag catggactgg aggaaacagc tgccaaatgc aagggactgg 350  
 gtgccaaggt tcataccttt gtggtagact gcagcaaccg agaagatatt 400  
 tacagctctg caaagaaggt gaaggcagaa attggagatg ttagtatttt 450  
 agtaaataat gctgggtgtag tctatacatc agatttgttt gctacacaag 500  
 atcctcagat tgaaaagact tttgaagtta atgtacttgc acatttctgg 550  
 actacaaagg catttcttcc tgcaatgacg aagaataacc atggccatat 600  
 tgtcactgtg gcttcggcag ctggacatgt ctcggtcccc ttcttactgg 650  
 ctactgttc aagcaagttt gctgctgttg gatttcataa aactttgaca 700  
 gatgaactgg ctgccttaca aataactgga gtcaaaacaa catgtctgtg 750  
 tcctaatttc gtaaacactg gcttcatcaa aaatccaagt acaagtgttg 800  
 gaccactct ggaacctgag gaagtggtaa acaggctgat gcatgggatt 850  
 ctgactgagc agaagatgat ttttattcca tcttctatag cttttttaac 900  
 aacattggaa aggatccttc ctgagcgttt cctggcagtt ttaaaacgaa 950  
 aaatcagtg taagtttgat gcagttattg gatataaaat gaaagcgcaa 1000  
 taagcaccta gttttctgaa aactgattta ccagggttag gttgatgtca 1050  
 tctaatagtg ccagaatttt aatgtttgaa cttctgtttt ttctaattat 1100  
 cccatttct tcaatatcat ttttgaggct ttggcagtct tcatttacta 1150  
 ccacttggtc tttagccaaa agctgattac atatgatata aacagagaaa 1200  
 tacctttaga ggtgacttta aggaaaatga agaaaaagaa ccaaaatgac 1250  
 tttattaaaa taatttccaa gattatttgt ggctcacctg aaggctttgc 1300  
 aaaatttgta ccataaccgt ttatttaaca tatattttta tttttgattg 1350  
 cacttaaatt ttgtataatt tgtgtttctt tttctgttct acataaaatc 1400  
 agaaacttca agctctctaa ataaaatgaa ggactatata tagtggtatt 1450  
 tcacaatgaa tatcatgaac tctcaatggg taggtttcat cctaccatt 1500

gccactctgt ttctgagag atacctcaca ttccaatgcc aaacatttct 1550  
gcacagggaa gctagagggtg gatacacgtg ttgcaagtat aaaagcatca 1600  
ctgggattta aggagaattg agagaatgta cccacaaatg gcagcaataa 1650  
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1750  
aaaaaaaaaa aaaaaaaaaa a 1771

<210> 37  
<211> 300  
<212> PRT  
<213> Homo Sapien

<400> 37  
Met Lys Phe Leu Leu Asp Ile Leu Leu Leu Leu Pro Leu Leu Ile  
1 5 10 15  
Val Cys Ser Leu Glu Ser Phe Val Lys Leu Phe Ile Pro Lys Arg  
20 25 30  
Arg Lys Ser Val Thr Gly Glu Ile Val Leu Ile Thr Gly Ala Gly  
35 40 45  
His Gly Ile Gly Arg Leu Thr Ala Tyr Glu Phe Ala Lys Leu Lys  
50 55 60  
Ser Lys Leu Val Leu Trp Asp Ile Asn Lys His Gly Leu Glu Glu  
65 70 75  
Thr Ala Ala Lys Cys Lys Gly Leu Gly Ala Lys Val His Thr Phe  
80 85 90  
Val Val Asp Cys Ser Asn Arg Glu Asp Ile Tyr Ser Ser Ala Lys  
95 100 105  
Lys Val Lys Ala Glu Ile Gly Asp Val Ser Ile Leu Val Asn Asn  
110 115 120  
Ala Gly Val Val Tyr Thr Ser Asp Leu Phe Ala Thr Gln Asp Pro  
125 130 135  
Gln Ile Glu Lys Thr Phe Glu Val Asn Val Leu Ala His Phe Trp  
140 145 150  
Thr Thr Lys Ala Phe Leu Pro Ala Met Thr Lys Asn Asn His Gly  
155 160 165  
His Ile Val Thr Val Ala Ser Ala Ala Gly His Val Ser Val Pro  
170 175 180  
Phe Leu Leu Ala Tyr Cys Ser Ser Lys Phe Ala Ala Val Gly Phe  
185 190 195  
His Lys Thr Leu Thr Asp Glu Leu Ala Ala Leu Gln Ile Thr Gly



200	205	210
Val Lys Thr Thr Cys Leu Cys Pro Asn Phe Val Asn Thr Gly Phe		
215	220	225
Ile Lys Asn Pro Ser Thr Ser Leu Gly Pro Thr Leu Glu Pro Glu		
230	235	240
Glu Val Val Asn Arg Leu Met His Gly Ile Leu Thr Glu Gln Lys		
245	250	255
Met Ile Phe Ile Pro Ser Ser Ile Ala Phe Leu Thr Thr Leu Glu		
260	265	270
Arg Ile Leu Pro Glu Arg Phe Leu Ala Val Leu Lys Arg Lys Ile		
275	280	285
Ser Val Lys Phe Asp Ala Val Ile Gly Tyr Lys Met Lys Ala Gln		
290	295	300

<210> 38

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 38

ggtgaaggca gaaattggag atg 23

<210> 39

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 39

atcccatgca tcagcctgtt tacc 24

<210> 40

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 40

gctgggtgtag tctatacatc agatttggtt gctacacaag atcctcag 48

<210> 41

<211> 1377

<212> DNA

<213> Homo Sapien



<400> 41

gactagttct cttggagtct gggaggagga aagcggagcc ggcagggagc 50  
gaaccaggac tggggtgacg gcagggcagg gggcgcttg ccggggagaa 100  
gcgcgggggc tggagacca ccaactggag ggtccggagt agcgagcgcc 150  
ccgaaggagg ccatcgggga gccgggaggg gggactgca gaggaccccg 200  
gcgtccgggc tcccggtgcc agcgctatga ggccactcct cgtcctgctg 250  
ctcctgggccc tggcgggcgg ctgcggccca ctggacgaca acaagatccc 300  
cagcctctgc ccggggcacc ccggccttcc aggcacgccg ggccaccatg 350  
gcagccaggg cttgccgggc cgcgatggcc gcgacggccg cgacggcgcg 400  
cccggggctc cgggagagaa aggcgagggc gggaggcccg gactgccggg 450  
acctcgaggg gaccccgggc cgcgaggaga ggcgggaccc gcggggccca 500  
ccgggcctgc cggggagtgc tcgggtgcctc cgcgatccgc cttcagcgcc 550  
aagcgctccg agagccgggt gcctccgccg tctgacgcac cttgcccctt 600  
cgaccgcgtg ctggtgaacg agcagggaca ttacgacgcc gtcaccggca 650  
agtacacctg ccaggtgcct ggggtctact acttcgccgt ccatgccacc 700  
gtctaccggg ccagcctgca gtttgatctg gtgaagaatg gcgaatccat 750  
tgctcttttc ttccagtttt tcgggggggtg gcccagcca gcctcgctct 800  
cggggggggc catggtgagg ctggagcctg aggaccaagt gtgggtgcag 850  
gtgggtgtgg gtgactacat tggcatctat gccagcatca agacagacag 900  
caccttctcc ggatttctgg tgtactcga ctggcacagc tccccagtct 950  
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gggtgtgagg ctgacaacca ggtcatccag gagggtggc cccctggaa 1050  
tattgtgaat gactagggag gtggggtaga gcactctccg tctgctgct 1100  
ggcaaggaat gggaacagtg gctgtctgcg atcaggtctg gcagcatggg 1150  
gcagtggctg gatttctgcc caagaccaga ggagtgtgct gtgctggcaa 1200  
gtgtaagtcc ccagttgct ctggccagg agcccacggg ggggtgctct 1250  
cttctgggc ctctgcttct ctggatcctc cccacccct cctgctcctg 1300  
gggcgggccc ttttctcaga gatcactcaa taaacctaa aacctcata 1350  
aaaaaaaaa aaaaaaaaaa aaaaaaa 1377

<210> 42

<211> 243  
 <212> PRT  
 <213> Homo Sapien

<400> 42

Met	Arg	Pro	Leu	Leu	Val	Leu	Leu	Leu	Gly	Leu	Ala	Ala	Gly	1	5	10	15	
Ser	Pro	Pro	Leu	Asp	Asn	Lys	Ile	Pro	Ser	Leu	Cys	Pro	Gly	20	25	30		
His	Pro	Gly	Leu	Pro	Gly	Thr	Pro	Gly	His	His	Gly	Ser	Gln	Gly	35	40	45	
Leu	Pro	Gly	Arg	Asp	Gly	Arg	Asp	Gly	Arg	Asp	Gly	Ala	Pro	Gly	50	55	60	
Ala	Pro	Gly	Glu	Lys	Gly	Glu	Gly	Gly	Arg	Pro	Gly	Leu	Pro	Gly	65	70	75	
Pro	Arg	Gly	Asp	Pro	Gly	Pro	Arg	Gly	Glu	Ala	Gly	Pro	Ala	Gly	80	85	90	
Pro	Thr	Gly	Pro	Ala	Gly	Glu	Cys	Ser	Val	Pro	Pro	Arg	Ser	Ala	95	100	105	
Phe	Ser	Ala	Lys	Arg	Ser	Glu	Ser	Arg	Val	Pro	Pro	Pro	Ser	Asp	110	115	120	
Ala	Pro	Leu	Pro	Phe	Asp	Arg	Val	Leu	Val	Asn	Glu	Gln	Gly	His	125	130	135	
Tyr	Asp	Ala	Val	Thr	Gly	Lys	Phe	Thr	Cys	Gln	Val	Pro	Gly	Val	140	145	150	
Tyr	Tyr	Phe	Ala	Val	His	Ala	Thr	Val	Tyr	Arg	Ala	Ser	Leu	Gln	155	160	165	
Phe	Asp	Leu	Val	Lys	Asn	Gly	Glu	Ser	Ile	Ala	Ser	Phe	Phe	Gln	170	175	180	
Phe	Phe	Gly	Gly	Trp	Pro	Lys	Pro	Ala	Ser	Leu	Ser	Gly	Gly	Ala	185	190	195	
Met	Val	Arg	Leu	Glu	Pro	Glu	Asp	Gln	Val	Trp	Val	Gln	Val	Gly	200	205	210	
Val	Gly	Asp	Tyr	Ile	Gly	Ile	Tyr	Ala	Ser	Ile	Lys	Thr	Asp	Ser	215	220	225	
Thr	Phe	Ser	Gly	Phe	Leu	Val	Tyr	Ser	Asp	Trp	His	Ser	Ser	Pro	230	235	240	
Val	Phe	Ala																

<210> 43  
 <211> 24

<212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Synthetic oligonucleotide probe  
  
 <400> 43  
   tacaggccca gtcaggacca gggg 24  
  
 <210> 44  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Synthetic oligonucleotide probe  
  
 <400> 44  
   agccagcctc gctctcgg 18  
  
 <210> 45  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Synthetic oligonucleotide probe  
  
 <400> 45  
   gtctgcatc aggtctgg 18  
  
 <210> 46  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Synthetic oligonucleotide probe  
  
 <400> 46  
   gaaagaggca atggattcgc 20  
  
 <210> 47  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Synthetic oligonucleotide probe  
  
 <400> 47  
   gacttacact tgccagcaca gcac 24  
  
 <210> 48  
 <211> 45  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 48

ggagcaccac caactggagg gtccggagta gcgagcgccc cgaag 45

<210> 49

<211> 1876

<212> DNA

<213> Homo Sapien

<400> 49

ctcttttgtc caccagccca gcctgactcc tggagattgt gaatagctcc 50  
atccagcctg agaaacaagc cgggtggctg agccaggctg tgcacggagc 100  
acctgacggg cccaacagac ccatgctgca tccagagacc tcccctggcc 150  
gggggcatct cctggctgtg ctcttggccc tcttggcac cacctgggca 200  
gaggtgtggc caccacagct gcaggagcag gctccgatgg ccggagccct 250  
gaacaggaag gagagtttct tgctcctctc cctgcacaac cgctgcgca 300  
gctgggtcca gcccctgcg gctgacatgc ggaggctgga ctggagtgc 350  
agcctggccc aactggctca agccaggga gccctctgtg gaatcccaac 400  
cccgagcctg gcacccggcc tgtggcgcac cctgcaagtg ggctggaaca 450  
tgcagctgct gcccggggc ttggcgctct ttgttgaagt ggtcagccta 500  
tggtttgcag aggggcagcg gtacagccac gcggcaggag agtgtgctcg 550  
caacgccacc tgcacccact acacgcagct cgtgtggggc acctcaagcc 600  
agctgggctg tggggggcac ctgtgctctg caggccagac agcgatagaa 650  
gcctttgtct gtgcctactc ccccgagggc aactgggagg tcaacgggaa 700  
gacaatcacc ccctataaga aggggtgctg gtgttcgctc tgcacagcca 750  
gtgtctcagg ctgcttcaaa gcctgggacc atgcaggggg gctctgtgag 800  
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catcagcacc tgccactgcc actgtccccc tggctacacg ggcagatact 900  
gccaagtgcg gtgcagcctg cagtgtgtgc acggccggtt ccgggaggag 950  
gagtgctcgt gcgtctgtga catcggctac gggggagccc agtgtgccac 1000  
caaggtgcat ttcccttcc acacctgtga cctgaggatc gacggagact 1050  
gcttcatggt gtcttcagag gcagacacct attacagagc caggatgaaa 1100  
tgtcagagga aaggcggggg gctggcccag atcaagagcc agaaagtgc 1150

[illegible]

<211> 455

<213> Homo Sapien

Met Leu His Pro Glu Thr Ser Pro Gly Arg Gly His Leu Leu Ala  
1 5 10 15

Val Leu Leu Ala Leu Leu Gly Thr Thr Trp Ala Glu Val Trp Pro  
20 25 30

Pro Gln Leu Gln Glu Gln Ala Pro Met Ala Gly Ala Leu Asn Arg  
35 40 45

Lys Glu Ser Phe Leu Leu Leu Ser Leu His Asn Arg Leu Arg Ser  
50 55 60

Trp Val Gln Pro Pro Ala Ala Asp Met Arg Arg Leu Asp Trp Ser  
65 70 75

Asp Ser Leu Ala Gln Leu Ala Gln Ala Arg Ala Ala Leu Cys Gly  
80 85 90

Ile Pro Thr Pro Ser Leu Ala Ser Gly Leu Trp Arg Thr Leu Gln  
95 100 105

38

				110					115					120
Val	Glu	Val	Val	Ser 125	Leu	Trp	Phe	Ala	Glu 130	Gly	Gln	Arg	Tyr	Ser 135
His	Ala	Ala	Gly	Glu 140	Cys	Ala	Arg	Asn	Ala 145	Thr	Cys	Thr	His	Tyr 150
Thr	Gln	Leu	Val	Trp 155	Ala	Thr	Ser	Ser	Gln 160	Leu	Gly	Cys	Gly	Arg 165
His	Leu	Cys	Ser	Ala 170	Gly	Gln	Thr	Ala	Ile 175	Glu	Ala	Phe	Val	Cys 180
Ala	Tyr	Ser	Pro	Gly 185	Gly	Asn	Trp	Glu	Val 190	Asn	Gly	Lys	Thr	Ile 195
Ile	Pro	Tyr	Lys	Lys 200	Gly	Ala	Trp	Cys	Ser 205	Leu	Cys	Thr	Ala	Ser 210
Val	Ser	Gly	Cys	Phe 215	Lys	Ala	Trp	Asp	His 220	Ala	Gly	Gly	Leu	Cys 225
Glu	Val	Pro	Arg	Asn 230	Pro	Cys	Arg	Met	Ser 235	Cys	Gln	Asn	His	Gly 240
Arg	Leu	Asn	Ile	Ser 245	Thr	Cys	His	Cys	His 250	Cys	Pro	Pro	Gly	Tyr 255
Thr	Gly	Arg	Tyr	Cys 260	Gln	Val	Arg	Cys	Ser 265	Leu	Gln	Cys	Val	His 270
Gly	Arg	Phe	Arg	Glu 275	Glu	Glu	Cys	Ser	Cys 280	Val	Cys	Asp	Ile	Gly 285
Tyr	Gly	Gly	Ala	Gln 290	Cys	Ala	Thr	Lys	Val 295	His	Phe	Pro	Phe	His 300
Thr	Cys	Asp	Leu	Arg 305	Ile	Asp	Gly	Asp	Cys 310	Phe	Met	Val	Ser	Ser 315
Glu	Ala	Asp	Thr	Tyr 320	Tyr	Arg	Ala	Arg	Met 325	Lys	Cys	Gln	Arg	Lys 330
Gly	Gly	Val	Leu	Ala 335	Gln	Ile	Lys	Ser	Gln 340	Lys	Val	Gln	Asp	Ile 345
Leu	Ala	Phe	Tyr	Leu 350	Gly	Arg	Leu	Glu	Thr 355	Thr	Asn	Glu	Val	Thr 360
Asp	Ser	Asp	Phe	Glu 365	Thr	Arg	Asn	Phe	Trp 370	Ile	Gly	Leu	Thr	Tyr 375
Lys	Thr	Ala	Lys	Asp 380	Ser	Phe	Arg	Trp	Ala 385	Thr	Gly	Glu	His	Gln 390
Ala	Phe	Thr	Ser	Phe 395	Ala	Phe	Gly	Gln	Pro 400	Asp	Asn	His	Gly	Leu 405

Val Trp Leu Ser Ala Ala Met Gly Phe Gly Asn Cys Val Glu Leu  
410 415 420

Gln Ala Ser Ala Ala Phe Asn Trp Asn Asp Gln Arg Cys Lys Thr  
425 430 435

Arg Asn Arg Tyr Ile Cys Gln Phe Ala Gln Glu His Ile Ser Arg  
440 445 450

Trp Gly Pro Gly Ser  
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<210> 51  
<211> 24  
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<220>  
<223> Synthetic oligonucleotide probe

<400> 51  
aggaacttct ggatcgggct cacc 24

<210> 52  
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<212> DNA  
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<220>  
<223> Synthetic oligonucleotide probe

<400> 52  
gggtctgggc caggtggaag agag 24

<210> 53  
<211> 45  
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<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 53  
gccaaaggact cttccgctg ggccacagg gagcaccagg ccttc 45

<210> 54  
<211> 2331  
<212> DNA  
<213> Homo Sapien

<400> 54  
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gtcccgccgc ctgcgccgc catgctctg ctgctggggc tgtgcctggg 100  
gctgtccctg tgtgtggggc cgcaggaaga ggcgcagagc tggggccact 150  
cttcggagca ggatggactc aggggtcccga ggcaagtcag actgttgacg 200



[illegible]

acgtggaggt caccgccagc aacagtaaga aattcatcat cctgaagaca 1700  
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 ggagctacct caccacaaag gagctgctga gctcctggct gcaaagtga 1850  
 gatgaaccgg agaaggagcg gctgcgccag cgggccaggg ccctggctgt 1900  
 gagctaccgc ttctcactc ccttcacctc catgaagctg agggggccgg 1950  
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 aaaaaagaca tgggagagat ggtgtttttc ctctccacca cctggggata 2150  
 cgatgagaag atggccacct gcaagccagg aagacggccc tcaccagaca 2200  
 ccattgtctg tggcaccttg atcttgacc tcccagctc cagaactgtg 2250  
 agaaataaat gtgttttgtt taagctaaaa aaaaaaaaaa aaaaaaaaaa 2300  
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a 2331

<210> 55  
 <211> 694  
 <212> PRT  
 <213> Homo Sapien

<400> 55  
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 Gly Ser Gln Glu Glu Ala Gln Ser Trp Gly His Ser Ser Glu Gln  
 20 25 30  
 Asp Gly Leu Arg Val Pro Arg Gln Val Arg Leu Leu Gln Arg Leu  
 35 40 45  
 Lys Thr Lys Pro Leu Met Thr Glu Phe Ser Val Lys Ser Thr Ile  
 50 55 60  
 Ile Ser Arg Tyr Ala Phe Thr Thr Val Ser Cys Arg Met Leu Asn  
 65 70 75  
 Arg Ala Ser Glu Asp Gln Asp Ile Glu Phe Gln Met Gln Ile Pro  
 80 85 90  
 Ala Ala Ala Phe Ile Thr Asn Phe Thr Met Leu Ile Gly Asp Lys  
 95 100 105  
 Val Tyr Gln Gly Glu Ile Thr Glu Arg Glu Lys Lys Ser Gly Asp  
 110 115 120

Arg	Val	Lys	Glu	Lys	Arg	Asn	Lys	Thr	Thr	Glu	Glu	Asn	Gly	Glu	
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Lys	Gly	Thr	Glu	Ile	Phe	Arg	Ala	Ser	Ala	Val	Ile	Pro	Ser	Lys	
				140					145					150	
Asp	Lys	Ala	Ala	Phe	Phe	Leu	Ser	Tyr	Glu	Glu	Leu	Leu	Gln	Arg	
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Arg	Leu	Gly	Lys	Tyr	Glu	His	Ser	Ile	Ser	Val	Arg	Pro	Gln	Gln	
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Leu	Ser	Gly	Arg	Leu	Ser	Val	Asp	Val	Asn	Ile	Leu	Glu	Ser	Ala	
				185					190					195	
Gly	Ile	Ala	Ser	Leu	Glu	Val	Leu	Pro	Leu	His	Asn	Ser	Arg	Gln	
				200					205					210	
Arg	Gly	Ser	Gly	Arg	Gly	Glu	Asp	Asp	Ser	Gly	Pro	Pro	Pro	Ser	
				215					220					225	
Thr	Val	Ile	Asn	Gln	Asn	Glu	Thr	Phe	Ala	Asn	Ile	Ile	Phe	Lys	
				230					235					240	
Pro	Thr	Val	Val	Gln	Gln	Ala	Arg	Ile	Ala	Gln	Asn	Gly	Ile	Leu	
				245					250					255	
Gly	Asp	Phe	Ile	Ile	Arg	Tyr	Asp	Val	Asn	Arg	Glu	Gln	Ser	Ile	
				260					265					270	
Gly	Asp	Ile	Gln	Val	Leu	Asn	Gly	Tyr	Phe	Val	His	Tyr	Phe	Ala	
				275					280					285	
Pro	Lys	Asp	Leu	Pro	Pro	Leu	Pro	Lys	Asn	Val	Val	Phe	Val	Leu	
				290					295					300	
Asp	Ser	Ser	Ala	Ser	Met	Val	Gly	Thr	Lys	Leu	Arg	Gln	Thr	Lys	
				305					310					315	
Asp	Ala	Leu	Phe	Thr	Ile	Leu	His	Asp	Leu	Arg	Pro	Gln	Asp	Arg	
				320					325					330	
Phe	Ser	Ile	Ile	Gly	Phe	Ser	Asn	Arg	Ile	Lys	Val	Trp	Lys	Asp	
				335					340					345	
His	Leu	Ile	Ser	Val	Thr	Pro	Asp	Ser	Ile	Arg	Asp	Gly	Lys	Val	
				350					355					360	
Tyr	Ile	His	His	Met	Ser	Pro	Thr	Gly	Gly	Thr	Asp	Ile	Asn	Gly	
				365					370					375	
Ala	Leu	Gln	Arg	Ala	Ile	Arg	Leu	Leu	Asn	Lys	Tyr	Val	Ala	His	
				380					385					390	
Ser	Gly	Ile	Gly	Asp	Arg	Ser	Val	Ser	Leu	Ile	Val	Phe	Leu	Thr	
				395					400					405	
Asp	Gly	Lys	Pro	Thr	Val	Gly	Glu	Thr	His	Thr	Leu	Lys	Ile	Leu	

[illegible]

<210> 56  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 56  
gtgggaacca aactccggca gacc 24

<210> 57  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 57  
cacatcgagc gtctctgg 18

<210> 58  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 58  
agccgctcct tctccggttc atcg 24

<210> 59  
<211> 48  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 59  
tggaaggacc acttgatata agtcactcca gacagcatca gggatggg 48

<210> 60  
<211> 1413  
<212> DNA  
<213> Homo Sapien

<400> 60  
cggacgcgtg gggtgccga catggcgagt gtagtgctgc cgagcggatc 50  
ccagtgtgcg gcggcagcgg cggcggcggc gcctcccggg ctccggcttc 100  
tgctgttgc tttctccgc ggggactga tccccacagg tgatgggcag 150  
aatctgttta cgaaagacgt gacagtgatc gagggagagg ttgcgaccat 200

cagttgccaa	gtcaataaga	gtgacgactc	tgtgattcag	ctactgaatc	250
ccaacaggca	gaccatttat	ttcagggact	tcaggccttt	gaaggacagc	300
aggtttcagt	tgctgaattt	ttctagcagt	gaactcaaag	tatcattgac	350
aaacgtctca	atttctgatg	aaggaagata	cttttgccag	ctctataaccg	400
atccccaca	ggaaagtta	accaccatca	cagtcctggt	cccaccacgt	450
aatctgatga	tcgatatcca	gaaagacact	gcggtggaag	gtgaggagat	500
tgaagtcaac	tgcactgcta	tggccagcaa	gccagccacg	actatcaggt	550
ggttcaaagg	gaacacagag	ctaaaaggca	aatcgagagt	ggaagagtgg	600
tcagacatgt	acactgtgac	cagtcagctg	atgctgaagg	tgcacaagga	650
ggacgatggg	gtcccagtga	tctgccaggt	ggagcaccct	gcggtcactg	700
gaaacctgca	gaccagcgg	tatctagaag	tacagtataa	gcctcaagtg	750
cacattcaga	tgacttatcc	tctacaaggc	ttaaccggg	aaggggacgc	800
gcttgagtta	acatgtgaag	ccatcgggaa	gccccagcct	gtgatggtaa	850
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accaccacca	ccaccaccac	caccatcctt	accatcatca	cagattccccg	1100
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gaggacagaa	caactccgaa	gaaaagaaag	agtacttcat	ctagatcagc	1350
ctttttgttt	caatgaggtg	tccaactggc	cctattttaga	tgataaagag	1400
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<210> 61

<212> PRT

<400> 61

1

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Phe	Thr	Lys	Asp	Val	Thr	Val	Ile	Glu	Gly	Glu	Val	Ala	Thr	Ile		50	55	60
Ser	Cys	Gln	Val	Asn	Lys	Ser	Asp	Asp	Ser	Val	Ile	Gln	Leu	Leu		65	70	75
Asn	Pro	Asn	Arg	Gln	Thr	Ile	Tyr	Phe	Arg	Asp	Phe	Arg	Pro	Leu		80	85	90
Lys	Asp	Ser	Arg	Phe	Gln	Leu	Leu	Asn	Phe	Ser	Ser	Ser	Glu	Leu		95	100	105
Lys	Val	Ser	Leu	Thr	Asn	Val	Ser	Ile	Ser	Asp	Glu	Gly	Arg	Tyr		110	115	120
Phe	Cys	Gln	Leu	Tyr	Thr	Asp	Pro	Pro	Gln	Glu	Ser	Tyr	Thr	Thr		125	130	135
Ile	Thr	Val	Leu	Val	Pro	Pro	Arg	Asn	Leu	Met	Ile	Asp	Ile	Gln		140	145	150
Lys	Asp	Thr	Ala	Val	Glu	Gly	Glu	Glu	Ile	Glu	Val	Asn	Cys	Thr		155	160	165
Ala	Met	Ala	Ser	Lys	Pro	Ala	Thr	Thr	Ile	Arg	Trp	Phe	Lys	Gly		170	175	180
Asn	Thr	Glu	Leu	Lys	Gly	Lys	Ser	Glu	Val	Glu	Glu	Trp	Ser	Asp		185	190	195
Met	Tyr	Thr	Val	Thr	Ser	Gln	Leu	Met	Leu	Lys	Val	His	Lys	Glu		200	205	210
Asp	Asp	Gly	Val	Pro	Val	Ile	Cys	Gln	Val	Glu	His	Pro	Ala	Val		215	220	225
Thr	Gly	Asn	Leu	Gln	Thr	Gln	Arg	Tyr	Leu	Glu	Val	Gln	Tyr	Lys		230	235	240
Pro	Gln	Val	His	Ile	Gln	Met	Thr	Tyr	Pro	Leu	Gln	Gly	Leu	Thr		245	250	255
Arg	Glu	Gly	Asp	Ala	Leu	Glu	Leu	Thr	Cys	Glu	Ala	Ile	Gly	Lys		260	265	270
Pro	Gln	Pro	Val	Met	Val	Thr	Trp	Val	Arg	Val	Asp	Asp	Glu	Met		275	280	285
Pro	Gln	His	Ala	Val	Leu	Ser	Gly	Pro	Asn	Leu	Phe	Ile	Asn	Asn		290	295	300
Leu	Asn	Lys	Thr	Asp	Asn	Gly	Thr	Tyr	Arg	Cys	Glu	Ala	Ser	Asn				

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Ile Val Gly Lys	Ala His Ser Asp Tyr Met Leu Tyr Val Tyr Asp	
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Pro Pro Thr Thr	Ile Pro Pro Pro Thr Thr Thr Thr Thr Thr Thr	
335	340	345
Thr Thr Thr Thr	Thr Thr Ile Leu Thr Ile Ile Thr Asp Ser Arg	
350	355	360
Ala Gly Glu Glu	Gly Ser Ile Arg Ala Val Asp His Ala Val Ile	
365	370	375
Gly Gly Val Val	Ala Val Val Val Phe Ala Met Leu Cys Leu Leu	
380	385	390
Ile Ile Leu Gly	Arg Tyr Phe Ala Arg His Lys Gly Thr Tyr Phe	
395	400	405
Thr His Glu Ala	Lys Gly Ala Asp Asp Ala Ala Asp Ala Asp Thr	
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Lys Glu Tyr Phe	Ile	
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<210> 62  
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 <212> DNA  
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 <223> Synthetic oligonucleotide probe  
  
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 <210> 63  
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 <400> 63  
 gtacactgtg accagtcagc 20  
  
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 <212> DNA  
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 <223> Synthetic oligonucleotide probe



<400> 64  
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<210> 65  
<211> 24  
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<220>  
<223> Synthetic oligonucleotide probe

<400> 65  
ttcaatctcc tcaccttcca ccgc 24

<210> 66  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 66  
atagctgtgt ctgcgtctgc tgcg 24

<210> 67  
<211> 50  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 67  
cgcggcactg atccccacag gtgatgggca gaatctgttt acgaaagacg 50

<210> 68  
<211> 2555  
<212> DNA  
<213> Homo Sapien

<400> 68  
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ccctctgctg ctgcgcgtgc tctgtctact ggccctgggg cctgggggtgc 200  
agggctgccc atccggctgc cagtgcagcc agccacagac agtcttctgc 250  
actgcccgcc aggggaccac ggtgccccga gacgtgccac ccgacacggt 300  
ggggctgtac gtctttgaga acggcatcac catgctcgac gcaagcagct 350  
ttgccggcct gccgggctg cagctctctg acctgtcaca gaaccagatc 400

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caggtggggc	caggggctgg	gcccctggaa	ctggagggag	tgaaggtccc	1800
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[illegible]

<211> 598

<213> Homo Sapien

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35 40 45

Val Pro Arg Asp Val Pro Pro Asp Thr Val Gly Leu Tyr Val Phe  
50 55 60

Glu Asn Gly Ile Thr Met Leu Asp Ala Ser Ser Phe Ala Gly Leu  
65 70 75

Pro Gly Leu Gln Leu Leu Asp Leu Ser Gln Asn Gln Ile Ala Ser  
80 85 90

Leu Arg Leu Pro Arg Leu Leu Leu Leu Asp Leu Ser His Asn Ser  
95 100 105

51

				110					115					120
Ala	Leu	Arg	Leu	Ala 125	Gly	Leu	Gly	Leu	Gln 130	Gln	Leu	Asp	Glu	Gly 135
Leu	Phe	Ser	Arg	Leu 140	Arg	Asn	Leu	His	Asp 145	Leu	Asp	Val	Ser	Asp 150
Asn	Gln	Leu	Glu	Arg 155	Val	Pro	Pro	Val	Ile 160	Arg	Gly	Leu	Arg	Gly 165
Leu	Thr	Arg	Leu	Arg 170	Leu	Ala	Gly	Asn	Thr 175	Arg	Ile	Ala	Gln	Leu 180
Arg	Pro	Glu	Asp	Leu 185	Ala	Gly	Leu	Ala	Ala 190	Leu	Gln	Glu	Leu	Asp 195
Val	Ser	Asn	Leu	Ser 200	Leu	Gln	Ala	Leu	Pro 205	Gly	Asp	Leu	Ser	Gly 210
Leu	Phe	Pro	Arg	Leu 215	Arg	Leu	Leu	Ala	Ala 220	Ala	Arg	Asn	Pro	Phe 225
Asn	Cys	Val	Cys	Pro 230	Leu	Ser	Trp	Phe	Gly 235	Pro	Trp	Val	Arg	Glu 240
Ser	His	Val	Thr	Leu 245	Ala	Ser	Pro	Glu	Glu 250	Thr	Arg	Cys	His	Phe 255
Pro	Pro	Lys	Asn	Ala 260	Gly	Arg	Leu	Leu	Leu 265	Glu	Leu	Asp	Tyr	Ala 270
Asp	Phe	Gly	Cys	Pro 275	Ala	Thr	Thr	Thr	Thr 280	Ala	Thr	Val	Pro	Thr 285
Thr	Arg	Pro	Val	Val 290	Arg	Glu	Pro	Thr	Ala 295	Leu	Ser	Ser	Ser	Leu 300
Ala	Pro	Thr	Trp	Leu 305	Ser	Pro	Thr	Ala	Pro 310	Ala	Thr	Glu	Ala	Pro 315
Ser	Pro	Pro	Ser	Thr 320	Ala	Pro	Pro	Thr	Val 325	Gly	Pro	Val	Pro	Gln 330
Pro	Gln	Asp	Cys	Pro 335	Pro	Ser	Thr	Cys	Leu 340	Asn	Gly	Gly	Thr	Cys 345
His	Leu	Gly	Thr	Arg 350	His	His	Leu	Ala	Cys 355	Leu	Cys	Pro	Glu	Gly 360
Phe	Thr	Gly	Leu	Tyr 365	Cys	Glu	Ser	Gln	Met 370	Gly	Gln	Gly	Thr	Arg 375
Pro	Ser	Pro	Thr	Pro 380	Val	Thr	Pro	Arg	Pro 385	Pro	Arg	Ser	Leu	Thr 390
Leu	Gly	Ile	Glu	Pro 395	Val	Ser	Pro	Thr	Ser 400	Leu	Arg	Val	Gly	Leu 405

Gln Arg Tyr Leu	Gln Gly Ser Ser Val	Gln Leu Arg Ser Leu Arg
410		420
Leu Thr Tyr Arg	Asn Leu Ser Gly Pro	Asp Lys Arg Leu Val Thr
425		435
Leu Arg Leu Pro	Ala Ser Leu Ala Glu	Tyr Thr Val Thr Gln Leu
440		450
Arg Pro Asn Ala	Thr Tyr Ser Val Cys	Val Met Pro Leu Gly Pro
455		465
Gly Arg Val Pro	Glu Gly Glu Glu Ala	Cys Gly Glu Ala His Thr
470		480
Pro Pro Ala Val	His Ser Asn His Ala	Pro Val Thr Gln Ala Arg
485		495
Glu Gly Asn Leu	Pro Leu Leu Ile Ala	Pro Ala Leu Ala Ala Val
500		510
Leu Leu Ala Ala	Leu Ala Ala Val Gly	Ala Ala Tyr Cys Val Arg
515		525
Arg Gly Arg Ala	Met Ala Ala Ala Ala	Gln Asp Lys Gly Gln Val
530		540
Gly Pro Gly Ala	Gly Pro Leu Glu Leu	Glu Gly Val Lys Val Pro
545		555
Leu Glu Pro Gly	Pro Lys Ala Thr Glu	Gly Gly Gly Glu Ala Leu
560		570
Pro Ser Gly Ser	Glu Cys Glu Val Pro	Leu Met Gly Phe Pro Gly
575		585
Pro Gly Leu Gln	Ser Pro Leu His Ala	Lys Pro Tyr Ile
590		595

<210> 70

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 70

ccctccactg cccacccgac tg 22

<210> 71

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 71  
cggttctggg gacgttaggg ctcg 24

<210> 72  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 72  
ctgcccaccg tccacctgcc tcaat 25

<210> 73  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 73  
aggactgccc accgtccacc tgcctcaatg ggggcacatg ccacc 45

<210> 74  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic Oligonucleotide Probe

<400> 74  
acgcaaagcc ctacatctaa gccagagaga gacagggcag ctggg 45

<210> 75  
<211> 1077  
<212> DNA  
<213> Homo Sapien

<400> 75  
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 agggaatgtg caggaacaga ggcactcttc tgggtttggc tccccgttcc 1000  
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<210> 76  
 <211> 250  
 <212> PRT  
 <213> Homo Sapien

<400> 76  
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 35 40 45  
 Met Ala Leu Leu Thr Gln Gln Thr Glu Leu Gln Ser Leu Arg Arg  
 50 55 60  
 Glu Val Ser Arg Leu Gln Gly Thr Gly Gly Pro Ser Gln Asn Gly  
 65 70 75  
 Glu Gly Tyr Pro Trp Gln Ser Leu Pro Glu Gln Ser Ser Asp Ala  
 80 85 90  
 Leu Glu Ala Trp Glu Asn Gly Glu Arg Ser Arg Lys Arg Arg Ala  
 95 100 105  
 Val Leu Thr Gln Lys Gln Lys Lys Gln His Ser Val Leu His Leu  
 110 115 120

Val Pro Ile Asn Ala Thr Ser Lys Asp Asp Ser Asp Val Thr Glu  
125 130 135

Val Met Trp Gln Pro Ala Leu Arg Arg Gly Arg Gly Leu Gln Ala  
140 145 150

Gln Gly Tyr Gly Val Arg Ile Gln Asp Ala Gly Val Tyr Leu Leu  
155 160 165

Tyr Ser Gln Val Leu Phe Gln Asp Val Thr Phe Thr Met Gly Gln  
170 175 180

Val Val Ser Arg Glu Gly Gln Gly Arg Gln Glu Thr Leu Phe Arg  
185 190 195

Cys Ile Arg Ser Met Pro Ser His Pro Asp Arg Ala Tyr Asn Ser  
200 205 210

Cys Tyr Ser Ala Gly Val Phe His Leu His Gln Gly Asp Ile Leu  
215 220 225

Ser Val Ile Ile Pro Arg Ala Arg Ala Lys Leu Asn Leu Ser Pro  
230 235 240

His Gly Thr Phe Leu Gly Phe Val Lys Leu  
245 250

<210> 77  
<211> 2849  
<212> DNA  
<213> Homo Sapien

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gggggggacc tgtggtctgt cgtaccgccc cccacctcc tcttctgcac 150  
tgccgtcttc cggaagacct tttcccttgc tctgtttctt tcaccgagtc 200  
tgtgcacgcg cccggacctg gccgggagga ggcttggccg gcgggagatg 250  
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gaacagcagg agtgggaggg gactgaggag ctgccgtcgc ctccggacca 450  
tgccgagagg gctgaagaac aacatgaaaa atacaggccc agtcaggacc 500  
aggggctccc tgcttcccgg tgcttgcgct gctgtgacct cggtacctcc 550  
atgtaccggc cgaccgccgt gcccagatc aacatcacta tcttgaaagg 600  
ggagaagggt gaccgcggag atcgaggcct ccaagggaaa tatggcaaaa 650



Table 1. *Salmonella* serotypes and phage types isolated from the 1990-1991 and 1991-1992 seasons in the United States

Season	Serotype	Phage type	Number of isolates
1990-1991	Senftenberg	1	1
	Senftenberg	2	1
	Senftenberg	3	1
	Senftenberg	4	1
	Senftenberg	5	1
	Senftenberg	6	1
	Senftenberg	7	1
	Senftenberg	8	1
	Senftenberg	9	1
	Senftenberg	10	1
1991-1992	Senftenberg	1	1
	Senftenberg	2	1
	Senftenberg	3	1
	Senftenberg	4	1
	Senftenberg	5	1
	Senftenberg	6	1
	Senftenberg	7	1
	Senftenberg	8	1
	Senftenberg	9	1
	Senftenberg	10	1

ctgtttttta taaaacacct caagcagcac tgcagtctcc catctctctg 2150  
 tgggctaagc atcacgcgtt ccacgtgtgt tgtgttggtt ggcagcaagg 2200  
 ctgatccaga ccccttctgc ccccaactgcc ctcatccagg cctctgacca 2250  
 gtagcctgag aggggctttt tctaggcttc agagcagggg agagctggaa 2300  
 ggggctagaa agctcccgtt tgtctgtttc tcaggctcct gtgagcctca 2350  
 gtcctgagac cagagtcaag aggaagtaca cgtcccaatc acccgtgtca 2400  
 ggattcactc tcaggagctg ggtggcagga gaggcaatag cccctgtggc 2450  
 aattgcagga ccagctggag cagggttgcg gtgtctccac ggtgctctcg 2500  
 ccctgcccac ggccacccca gactctgata tcaggaacc ccatagcccc 2550  
 tctccacctc acccatgtt gatgccagc gtcactcttg ctaccgcgtg 2600  
 ggccccaaa ccccgctgc ctctcttct tcccccatc cccacctgg 2650  
 ttttgactaa tctgtcttc ctctctgggc ctggctgccc ggtctgggg 2700  
 tccctaagtc cctctcttta aagaacttct gcgggtcaga ctctgaagcc 2750  
 gagttgctgt gggcgtgccc ggaagcagag cggcacactc gctgcttaag 2800  
 ctccccagc tctttccaga aaacattaaa ctcagaattg tgttttcaa 2849

<210> 78

<211> 281

<212> PRT

<213> Homo Sapien

<400> 78

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Leu	Ala	Phe	Ala	Ser	Gly	Leu	Val	Leu	Ser	Arg	Val	Pro	His	Val
				20					25					30
Gln	Gly	Glu	Gln	Gln	Glu	Trp	Glu	Gly	Thr	Glu	Glu	Leu	Pro	Ser
				35					40					45
Pro	Pro	Asp	His	Ala	Glu	Arg	Ala	Glu	Glu	Gln	His	Glu	Lys	Tyr
				50					55					60
Arg	Pro	Ser	Gln	Asp	Gln	Gly	Leu	Pro	Ala	Ser	Arg	Cys	Leu	Arg
				65					70					75
Cys	Cys	Asp	Pro	Gly	Thr	Ser	Met	Tyr	Pro	Ala	Thr	Ala	Val	Pro
				80					85					90
Gln	Ile	Asn	Ile	Thr	Ile	Leu	Lys	Gly	Glu	Lys	Gly	Asp	Arg	Gly
				95					100					105
Asp	Arg	Gly	Leu	Gln	Gly	Lys	Tyr	Gly	Lys	Thr	Gly	Ser	Ala	Gly

110	115	120
Ala Arg Gly His Thr Gly Pro Lys Gly Gln Lys Gly Ser Met Gly 125	130	135
Ala Pro Gly Glu Arg Cys Lys Ser His Tyr Ala Ala Phe Ser Val 140	145	150
Gly Arg Lys Lys Pro Met His Ser Asn His Tyr Tyr Gln Thr Val 155	160	165
Ile Phe Asp Thr Glu Phe Val Asn Leu Tyr Asp His Phe Asn Met 170	175	180
Phe Thr Gly Lys Phe Tyr Cys Tyr Val Pro Gly Leu Tyr Phe Phe 185	190	195
Ser Leu Asn Val His Thr Trp Asn Gln Lys Glu Thr Tyr Leu His 200	205	210
Ile Met Lys Asn Glu Glu Glu Val Val Ile Leu Phe Ala Gln Val 215	220	225
Gly Asp Arg Ser Ile Met Gln Ser Gln Ser Leu Met Leu Glu Leu 230	235	240
Arg Glu Gln Asp Gln Val Trp Val Arg Leu Tyr Lys Gly Glu Arg 245	250	255
Glu Asn Ala Ile Phe Ser Glu Glu Leu Asp Thr Tyr Ile Thr Phe 260	265	270
Ser Gly Tyr Leu Val Lys His Ala Thr Glu Pro 275	280	

<210> 79

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 79

tacaggccca gtcaggacca gggg 24

<210> 80

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 80

ctgaagaagt agaggccggg cacg 24

<210> 81

<211> 45  
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<220>  
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<400> 81  
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<210> 82  
<211> 2284  
<212> DNA  
<213> Homo Sapien

<400> 82  
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ggcgccgggg tcctctcgac gccagagaga aatctcatca tctgtgcagc 150  
cttcttaaag caaactaaga ccagagggag gattatcctt gacctttgaa 200  
gacaaaaact aaactgaaat ttaaaatggt cttcggggga gaaggagct 250  
tgacttacac tttggtaata atttgcttcc tgacactaag gctgtctgct 300  
agtcagaatt gcctcaaaaa gagtctagaa gatgttgtca ttgacatcca 350  
gtcatctctt tctaaggga tcaaggcaa tgagcccgta tatacttcaa 400  
ctcaagaaga ctgcattaat tcttgctgtt caacaaaaaa catatcaggg 450  
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tgcccagctc cttgcttata aggaaaaagg ccattctcag agttcacaat 850  
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<211> 431

<213> Homo Sapien

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Lys Lys Ser Leu Glu Asp Val Val Ile Asp Ile Gln Ser Ser Leu	35	40	45
Ser Lys Gly Ile Arg Gly Asn Glu Pro Val Tyr Thr Ser Thr Gln	50	55	60
Glu Asp Cys Ile Asn Ser Cys Cys Ser Thr Lys Asn Ile Ser Gly	65	70	75
Asp Lys Ala Cys Asn Leu Met Ile Phe Asp Thr Arg Lys Thr Ala	80	85	90
Arg Gln Pro Asn Cys Tyr Leu Phe Phe Cys Pro Asn Glu Glu Ala	95	100	105
Cys Pro Leu Lys Pro Ala Lys Gly Leu Met Ser Tyr Arg Ile Ile	110	115	120
Thr Asp Phe Pro Ser Leu Thr Arg Asn Leu Pro Ser Gln Glu Leu	125	130	135
Pro Gln Glu Asp Ser Leu Leu His Gly Gln Phe Ser Gln Ala Val	140	145	150
Thr Pro Leu Ala His His His Thr Asp Tyr Ser Lys Pro Thr Asp	155	160	165
Ile Ser Trp Arg Asp Thr Leu Ser Gln Lys Phe Gly Ser Ser Asp	170	175	180
His Leu Glu Lys Leu Phe Lys Met Asp Glu Ala Ser Ala Gln Leu	185	190	195
Leu Ala Tyr Lys Glu Lys Gly His Ser Gln Ser Ser Gln Phe Ser	200	205	210
Ser Asp Gln Glu Ile Ala His Leu Leu Pro Glu Asn Val Ser Ala	215	220	225
Leu Pro Ala Thr Val Ala Val Ala Ser Pro His Thr Thr Ser Ala	230	235	240
Thr Pro Lys Pro Ala Thr Leu Leu Pro Thr Asn Ala Ser Val Thr	245	250	255
Pro Ser Gly Thr Ser Gln Pro Gln Leu Ala Thr Thr Ala Pro Pro	260	265	270
Val Thr Thr Val Thr Ser Gln Pro Pro Thr Thr Leu Ile Ser Thr	275	280	285
Val Phe Thr Arg Ala Ala Ala Thr Leu Gln Ala Met Ala Thr Thr	290	295	300
Ala Val Leu Thr Thr Thr Phe Gln Ala Pro Thr Asp Ser Lys Gly			

305	310	315
Ser Leu Glu Thr Ile Pro Phe Thr Glu Ile Ser Asn Leu Thr Leu		
320	325	330
Asn Thr Gly Asn Val Tyr Asn Pro Thr Ala Leu Ser Met Ser Asn		
335	340	345
Val Glu Ser Ser Thr Met Asn Lys Thr Ala Ser Trp Glu Gly Arg		
350	355	360
Glu Ala Ser Pro Gly Ser Ser Ser Gln Gly Ser Val Pro Glu Asn		
365	370	375
Gln Tyr Gly Leu Pro Phe Glu Lys Trp Leu Leu Ile Gly Ser Leu		
380	385	390
Leu Phe Gly Val Leu Phe Leu Val Ile Gly Leu Val Leu Leu Gly		
395	400	405
Arg Ile Leu Ser Glu Ser Leu Arg Arg Lys Arg Tyr Ser Arg Leu		
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425	430	

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 <211> 30  
 <212> DNA  
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<220>  
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<210> 85  
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<220>  
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<400> 85  
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<210> 86  
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 <212> DNA  
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<400> 86  
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<210> 87  
<211> 24  
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<400> 87  
caccgtagct gggagcgac tcac 24

<210> 88  
<211> 18  
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<220>  
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agtgttaagtc aagctccc 18

<210> 89  
<211> 49  
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gtctcctgac actaaggctg tctgctagtc agaattgcct caaaaagag 49

<210> 90  
<211> 957  
<212> DNA  
<213> Homo Sapien

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cattccagat gcacccctgt ccagtgtgc ctatagcatc cgcagcatcg 150  
gggagaggcc tgctctcaaa gctccagtc ccaaaaggca aaaatgtgac 200  
cactggactc cctgcccata tgacacctat gcttacaggt tactcagcgg 250  
aggtggcaga agcaagtaag ccaaaatctg ctttgaggat aacctactta 300  
tgggagaaca gctgggaaat gttgccagag gaataaacat tgccattgtc 350  
aactatgtaa ctgggaatgt gacagcaaca cgatgttttg atatgtatga 400  
aggcgataac tctggaccga tgacaaagtt tattcagagt gctgctccaa 450  
aatccctgct ctctcatggtg acctatgacg acggaagcac aagactgaat 500



[illegible]

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				20					25					30	
Leu	Ile	Pro	Asp	Ala	Pro	Leu	Ser	Ser	Ala	Ala	Tyr	Ser	Ile	Arg	
				35					40					45	
Ser	Ile	Gly	Glu	Arg	Pro	Val	Leu	Lys	Ala	Pro	Val	Pro	Lys	Arg	
				50					55					60	
Gln	Lys	Cys	Asp	His	Trp	Thr	Pro	Cys	Pro	Ser	Asp	Thr	Tyr	Ala	
				65					70					75	
Tyr	Arg	Leu	Leu	Ser	Gly	Gly	Gly	Arg	Ser	Lys	Tyr	Ala	Lys	Ile	
				80					85					90	
Cys	Phe	Glu	Asp	Asn	Leu	Leu	Met	Gly	Glu	Gln	Leu	Gly	Asn	Val	
				95					100					105	
Ala	Arg	Gly	Ile	Asn	Ile	Ala	Ile	Val	Asn	Tyr	Val	Thr	Gly	Asn	
				110					115					120	
Val	Thr	Ala	Thr	Arg	Cys	Phe	Asp	Met	Tyr	Glu	Gly	Asp	Asn	Ser	
				125					130					135	
Gly	Pro	Met	Thr	Lys	Phe	Ile	Gln	Ser	Ala	Ala	Pro	Lys	Ser	Leu	
				140					145					150	
Leu	Phe	Met	Val	Thr	Tyr	Asp	Asp	Gly	Ser	Thr	Arg	Leu	Asn	Asn	
				155					160					165	

Asp Ala Lys Asn Ala Ile Glu Ala Leu Gly Ser Lys Glu Ile Arg  
 170 175 180  
 Asn Met Lys Phe Arg Ser Ser Trp Val Phe Ile Ala Ala Lys Gly  
 185 190 195  
 Leu Glu Leu Pro Ser Glu Ile Gln Arg Glu Lys Ile Asn His Ser  
 200 205 210  
 Asp Ala Lys Asn Asn Arg Tyr Ser Gly Trp Pro Ala Glu Ile Gln  
 215 220 225  
 Ile Glu Gly Cys Ile Pro Lys Glu Arg Ser  
 230 235

<210> 92

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 92

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<210> 93

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 93

aggcttgga ctccttc 18

<210> 94

<211> 24

<212> DNA

<213> Artificial Sequence

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<210> 95

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 95

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<210> 96  
<211> 21  
<212> DNA  
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<220>  
<223> Synthetic oligonucleotide probe

<400> 96  
ctcaagaagc acgcgtactg c 21

<210> 97  
<211> 25  
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<220>  
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<400> 97  
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<210> 98  
<211> 18  
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<220>  
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<400> 98  
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<210> 99  
<211> 20  
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<210> 100  
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<210> 101  
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<223> Synthetic oligonucleotide probe

<400> 101

gggcagaaat ccagccact 19

<210> 102

<211> 18

<212> DNA

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<211> 27

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<220>

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<400> 103

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<211> 19

<212> DNA

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<210> 105

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 105

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<210> 106

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 106

tggcccagct gacgagccct 20

<210> 107

<211> 21

<212> DNA

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<210> 108

<211> 19

<212> DNA

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<220>

<223> Synthetic oligonucleotide probe

<400> 108

tggctcccag cttggaaga 19

<210> 109

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 109

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<210> 110

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 110

gatgcctctg ttctgcaca t 21

<210> 111

<211> 48

<212> DNA

<213> Artificial Sequence

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<210> 112

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 112

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<210> 113

<211> 43

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 113

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<210> 114

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 114

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<210> 115

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 115

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<210> 116

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide probe

<400> 116

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<210> 117

<211> 48  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Synthetic oligonucleotide probe  
  
 <400> 117  
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 <210> 118  
 <211> 48  
 <212> DNA  
 <213> Artificial Sequence  
  
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 <223> Synthetic oligonucleotide probe  
  
 <400> 118  
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 <210> 119  
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 <212> DNA  
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 <223> Synthetic oligonucleotide probe  
  
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 <400> 120  
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